REMARKS

Claims 1-2 and 4-13, 15 and 20 are pending in the application. Claim 14 was canceled by the present amendment and claim 20 was rewritten into independent format. No new matter was added.

I. INTERVIEW

Applicants thank the Examiner for conducting a personal interview with the applicant's representative on December 23, 2004. The rejected claims were discussed with regard to *Chen et al.* No agreement was reached.

II. STATUS OF CLAIMS

Claims 1-2, 4-13, 15 and 20 are pending in the application.

III. SUMMARY OF CLAIMED SUBJECT MATTER

Embodiments of the present invention relate generally to liquid absorbent open-cell polymeric foam material having properties which make it suitable for use as an absorbent structure in absorbent articles. Page 1, lines 3-7.

In a preferred embodiment, the foam is built of a continuous three-dimensional network or cellular structure of a solid, which surrounds a gaseous phase dispersed therein. Preferably, the solid phase is a polymeric material, which forms the cell walls in a continuous cellular phase. The cells may have different shape, size, and topography and be open or closed. Preferably, the cell structure is open, which means that the cells communicate with each other. The term foam, as defined according to the present invention, also encompasses materials where fibers of different types are integrated in the cell structure. Page 4, lines 13-20.

A preferred open-cell polymeric foam material has multifunctional absorption properties: absorption acquisition capacity, distribution capacity and storage capacity. The material should thus be able to simultaneously fulfill the functions of a liquid acquisition layer, distribution layer and storage layer. Page 5, lines 1-5

In order that an absorbent material will have the desired multifunctional properties, it is desirable to have a distribution of its absorption capacity in two different forms, capillary liquid and gel liquid. Gel liquid refers to liquid held in pores smaller than 3 μm and capillary liquid refers to loosely bound liquid in pores larger than 3 μm and up to 500 μm. Gel liquid is the liquid that is held most firmly in the structure. It is preferable that the gel liquid absorption, determined as the total amount of liquid in pores below 3 μm, according to PVD measurements, is at least 4 g/g and more preferably at least 5 g/g of synthetic urine. The capillary liquid absorption, determined as the total amount of liquid in pores between 3-100 μm, according to PVD measurements, is preferably at least 8 mL/g, more preferably at least 10 mL/g. Page 5, lines 20-29.

The foam should have defined values of liquid acquisition, distribution and storage capacity. Thus, in a preferred embodiment, it should have an absorption rate at wetting of at least 0.4 ml/s for a round sample having a 50 mm diameter, a liquid distribution capacity at an inclination of 30° of at least 15 g/g and a liquid storage capacity of at least 9% measured through centrifuge retention capacity, for synthetic urine test liquid. Page 5, line 31 – Page 6, line 7.

IV. ARGUMENT - REJECTION UNDER 35 U.S.C. § 102(e)/103(a)

Claims 1-2, 4-13, 15 and 20 stand rejected under 35 U.S.C. § 102(e) as anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as obvious over *Chen et al.*, U.S. Patent No. 6,261,679. Applicants respectfully traverse this rejection.

The rejected claims are directed to liquid absorbent materials comprising a pore size distribution between 0 and 3 μm. As stated above, an absorbent material with pore sizes in this distribution is able to store liquid in a unique form, i.e., as gel liquid, which is held firmly in the absorbent material. This is a different type of liquid storage than results from capillary pressure which stores capillary liquid in pores of sizes from greater than 3 μm to 500 μm. The gel liquid absorption is a different form of absorption than the loosely bound capillary liquid absorption.

A. *Chen et al.* Does Not Disclose Pore Sizes Smaller than 20 μm

The Examiner has asserted that a disclosure in *Chen et al.*, at Column 42, lines 31-38, of

> the absolute diameter of the cells defined by the foamable binder material can be about 3 mm [3000 μm] or less; specifically about 1 mm [1000 μm] or less, more specifically about 0.3 mm [300 μm] or less, still more specifically about 0.1 mm [100 μm] or less, and most specifically from about 0.02 mm to about 0.2 mm [20 μm to about 200 μm]

anticipates the claimed range of pore sizes between 0 and 3 μm. Essentially, the Examiner is asserting that a disclosure of "or less" anticipates all pores sizes down to zero. Applicants respectfully disagree.

Applicants assert that a prior art reference must be considered in its entirety, i.e. as a whole. *W.L. Gore & Assocs. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983). Applicants contend that the disclosure of *Chen et al.*, when

properly considered as a whole, does not anticipate the present claims, specifically the claimed range of pore sizes between 0 and 3 μm.

A disclosure of pore sizes of 3000 μm or less does not teach one skilled in the art a pore size between 0 and 3 μm. The simple inclusion of "or less" does not provide a disclosure of each and every pore size under 3000 μm all the way to zero. Specifically, when read as a whole, it is clear to one skilled in the art that *Chen et al.* does not contemplate a pore size less than 20 μm. This is evidenced at least by the description at Column 42, lines 31-38, and because there is no other discussion of a pore size smaller than 20 μm. *Chen et al.* is deficient of a teaching of a pore size less than 20 μm.

Moreover, this deficiency of the teachings of *Chen et al.* is further exposed by the remaining disclosure of *Chen et al.* No other discussion in *Chen et al.* demonstrates a teaching of material with a pore size between 0 and 3 μm. Examples 1-6 in *Chen et al.*, at Columns 43-48, do not demonstrate a teaching of a pore size between 0 and 3 μm. Producing a foam material with properties according to the present claims is difficult. This is especially true with the fibrous material of *Chen et al.*. None of the Examples in *Chen et al.* teach methods that would appear to overcome these difficulties in order to produce a material having pore sizes between 0 and 3 μm.

As stated above, with a pore size distribution between 0 and 3 μm, the presently claimed absorbent material is able to store gel liquid. *Chen et al.* does not recognize or suggest gel liquid storage or any such manner of storage. Instead, with regard to foam absorption, *Chen et al.* is focused simply on capillary absorption.

Dissimilar to the present invention, *Chen et al.* proclaims to be focused on a primarily fibrous absorbent structure in contrast to fiber-reinforced foams. Column 1, lines 63-65. However, the resulting large fibrous structure pore sizes (500 – 7,000 μm)[1] offer relatively little capillary pressure. Column 42, lines 12-16. To remedy the low capillary pressure of the fibrous structure, *Chen et al.* discloses the use of open cell foam binder in a manner to also increase capillary pressure. Thus, *Chen et al.* is focused on using foamable binder for the additional purpose of simply storing capillary liquid. *Chen et al.* does not suggest any other absorbent function for the open cell foam.

Considering *Chen et al.* in its entirety, the disclosure of pore sizes of 3000 μm or less does not teach a pore size less than 20 μm and, therefore, does not teach the claimed invention which comprises pores sizes between 0 and 3 μm. That is, the remainder of *Chen et al.* does not teach one skilled in the art to view the disclosure of pore sizes of 3000 μm or less as providing a disclosure of pore sizes all the way to zero.

Claims 1-2, 4-13, 15 and 20 are, thus, not anticipated by *Chen et al.*

Additionally, claims 10-12 and 20 recite that the foam material has a distribution of pores with a diameter less than 3 μm which produces a gel liquid absorption of at least 4 g/g synthetic liquid. As discussed above, *Chen et al.* does not teach a pore size less than 20 μm, and also does not teach or suggest gel liquid absorption. Therefore, with no teaching of the necessary pore sizes or of any gel liquid absorption, *Chen et al.* clearly does not teach or suggest gel liquid absorption of at least 4 g/g. Thus, *Chen et al.* does not teach every element of claims 10-12

[1] Fibrous pore sizes are on order of the fiber length. See Column 46, lines 21-25. Average fiber length is 0.5 – 7 mm, which is 500 – 7,000 μm. Column 7, lines 47-54.

and 20, particularly gel liquid absorption of at least 4 g/g, and claims 10-12 and 20 are not anticipated.

B. Claims Encompass a Critical Range

In spite of the foregoing arguments, in the event that *Chen et al.* is construed to overlap the claimed range, a resulting prima facie case of obviousness is rebutted because of the criticality of the claimed range.

A prima facie case of obviousness based on overlapping ranges can be rebutted by showing criticality of the claimed range. See *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

The claimed range of pore sizes between 0 and 3 μm is a critical range. The range of pore sizes between 0 and 3 μm is a critical range because pores of only about that size are able to store liquid in a unique form, gel liquid. See the *Declaration of Kent Malmgren*, Paragraph 5, previously filed on June 2, 2004. Gel liquid is held firmly in the absorbent material of the present claims. All other pores of sizes greater than about 3 μm hold, at best, capillary liquid. Capillary liquid absorption is a different form of absorption that is more loosely bound than gel liquid.

Pore Size	**Between 0 and 3 μm**	**> 3 μm**
Liquid Storage	Gel Liquid NO Capillary Liquid	NO Gel Liquid Capillary Liquid

Thus, the claimed range compared with the range disclosed in the prior art shows a "marked improvement," so as to be a difference in kind, rather than one of degree. Therefore the claimed range of pore sizes between 0 and 3 μm is a critical range and no case of prima facie obviousness exists. In view thereof, Applicants

respectfully request that the rejection of the claims under 35 U.S.C. § 103(a) be withdrawn.

C. The Claimed Range Is Not Disclosed in *Chen et al.* With Sufficient Specificity

An interpretation of the disclosure of *Chen et al.*, specifically "less than", as resulting in a disclosure of pore sizes all the way to zero still does not result in anticipation of the claimed invention because the claimed range of pore sizes between 0 and 3 μm is not disclosed with sufficient specificity.

Because the claims are directed towards a narrow range, the claimed range must be disclosed in *Chen et al.* with "sufficient specificity" to constitute an anticipation of the claims. See MPEP § 2131.03. Based on the above discussion, applicants assert that the narrow claimed range is not disclosed with sufficient specificity in *Chen et al.* to constitute an anticipation of the claimed range.

Stated another way, one of skill in the art is not able to "at once envisage" the claimed range of pore sizes between 0 and 3 μm from the disclosure of *Chen et al.*

A disclosure of pore sizes of 3000 μm or less does not disclose with sufficient specificity a pore size between 0 and 3 μm. The simple inclusion of "or less" does not provide a specific disclosure of each and every pore size under 3000 μm all the way to zero. Further, the disclosure of a preferred range of 20 μm to 200 μm does not provide any specificity for the narrow range of pore sizes between 0 and 3 μm.

Moreover, the insufficiency of the specificity of *Chen et al.* is not remedied by the remaining disclosure of *Chen et al.* No other discussion in *Chen et al.* demonstrates with any specificity, let alone sufficient specificity, a pore size between 0 and 3 μm. Examples 1-6 in *Chen et al.*, at Columns 43-48, do not disclose with sufficient specificity a pore size between 0 and 3 μm, as none of the Examples in

Chen et al. teach methods that would appear to produce a material having pore sizes between 0 and 3 μm.

As stated above, with a pore size distribution between 0 and 3 μm, the presently claimed absorbent material is able to store gel liquid. *Chen et al.* does not recognize or suggest gel liquid storage or any such manner of storage. Instead, with regard to foam absorption, *Chen et al.* is focused simply on capillary absorption. No gel liquid absorption, or therefore pore sizes between 0 and 3 μm, is disclosed with sufficient specificity.

Thus, because the claimed range is not disclosed with sufficient specificity in *Chen et al.*, the present claims are not anticipated.

D. No Motivation To Modify *Chen et al.*

As discussed above, the disclosure of *Chen et al.* does not teach the present claims, specifically the claim limitation that the absorbent material comprises pores with sizes between 0 and 3 μm. There is nothing in *Chen et al.* that would have motivated persons skilled in the art to modify the disclosed pore sizes of *Chen et al.* in a manner to arrive at the presently claimed range. The disclosure of "or less" would not have motivated persons skilled in the art to incorporate pore of a size between 0 and 3 μm. The disclosure of pore sizes of 20 μm to 200 μm provides no motivation for one skilled in the art to modify the pores to sizes below 20 μm, let alone down to the claimed range of pore sizes between 0 and 3 μm.

Moreover, the unique manner of storing liquid, gel liquid, which can be accomplished at this pore size, is not obvious based on the disclosure of *Chen et al.*.

Dissimilar to the present invention, *Chen et al.* proclaims to be focused on a primarily fibrous absorbent structure in contrast to fiber-reinforced foams. Column 1,

lines 63-65. The resulting large fibrous structure pore sizes (500 – 7,000 μm) offer relatively little capillary pressure. Column 42, lines 12-16. To remedy the low capillary pressure of the fibrous structure, *Chen et al.* discloses the use of open cell foam binder in a manner to also increase capillary pressure. Thus, *Chen et al.* is focused on using foamable binder for the additional purpose of simply storing capillary liquid. *Chen et al.* does not suggest any other absorbent function for the open cell foam. Therefore, based on the disclosure of *Chen et al.*, one skilled in the art would not be motivated to incorporate gel liquid storage, or the accompanying pore size between 0 and 3 μm, in an absorbent material.

Moreover, no discussion in *Chen et al.* suggests or provides motivation to modify *Chen et al.* to reach a pore size between 0 and 3 μm. The Examples in *Chen et al.*, at Columns 43-48, do not suggest a pore size between 0 and 3 μm and none of the Examples in *Chen et al.* suggest methods that would appear to overcome these difficulties in order to produce a material having pore sizes between 0 and 3 μm.

Therefore, *Chen et al. et al.* would not have made the invention, as defined in the rejected claims, obvious since there is no motivation or suggestion provided to prepare a material with cells or pores of sizes between 0 and 3 μm. In view thereof, Applicants respectfully request that the rejection of claims 1-2, 4-13, 15 and 20 under 35 U.S.C. § 103(a) be withdrawn.

Additionally, claims 10-12 and 20 recite that the foam material has a distribution of pores with a diameter less than 3 μm which produces a gel liquid absorption of at least 4 g/g synthetic liquid. As discussed above, *Chen et al.* does not teach or suggest a pore size between 0 and 3 μm, and also does not teach or

suggest gel liquid absorption. Therefore, with no teaching or suggestion of the necessary pore sizes or of any gel liquid absorption, *Chen et al.* clearly does not teach or suggest gel liquid absorption of at least 4 g/g. That is, one skilled in the art reviewing *Chen et al.* would not be motivated to provide a distribution of pores with a diameter less than 3 μm such that the pores produce a gel liquid absorption of at least 4 g/g synthetic liquid. Thus, *Chen et al.* does not teach or suggest every element of claims 10-12 and 20, particularly gel liquid absorption of at least 4 g/g, and claims 10-12 and 20 are not obvious over *Chen et al.*

Applicants believe all matters raised in the above referenced Office Action have been responded to and that the application is now in condition for allowance. Should the Examiner have any questions regarding this Amendment, or regarding the application in general, the Examiner is invited to contact the undersigned at the number listed below in order to expedite prosecution of the application.

Respectfully submitted,

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